

ABSTRACT

A method of factoring numbers in a non-binary computation scheme and more particularly, a method of factoring numbers utilizing a digital multistate phase change material. The method includes providing energy in an amount characteristic of the number to be factored to a phase change material programmed according to a potential factor of the number. The programming strategy provides for the setting of the phase change material once for each time a multiple of a potential factor is present in the number to be factored. By counting the number of multiples and assessing the state of the phase change material upon execution of the method, a determination of whether a potential factor is indeed a factor may be made. A given volume of phase change material may be reprogrammed for different factors or separate volumes of phase change material may be employed for different factors. Parallel factorization over several potential factors may be achieved by combining separate volumes of phase change material programmed according to different potential factors. Methods of addition and computing congruences in a modular arithmetic system are also included.